

SIMULTANEOUS DETECTION OF METABOLIC ENZYME ACTIVITY AND  
METABOLITE LEVELS

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**ABSTRACT**

Provided are methods for detecting a metabolic disorder in an individual using mass spectrometry. One method involves (a) contacting a sample containing (i) one or more metabolically indicative enzymes and (ii) one or more metabolic analytes, with one or more substrates for said one or more enzymes to produce a reaction admixture, under conditions wherein at least one of said enzymes is capable of acting on a corresponding substrate to generate at least one product, and wherein one or more protease inhibitors are present; (b) contacting said reaction admixture with a reagent that inhibits the ability of said one or more enzymes to act on a corresponding substrate, wherein said one or more metabolic analytes and said at least one product are soluble in said reagent; to produce a test sample and (c) determining the presence or amount of said one or more metabolic analytes and said at least one product contained in said test sample using mass spectrometry, wherein a determined presence or amount of said one or more metabolic analytes and said at least one product correlates with presence or absence of said metabolic disorder.